

# Short Term Course on Embedded Systems Design & Programming

<b>Time</b>	<b>Topic / Event</b>	<b>Remarks</b>
Day-1	New registrations if any, distribution of course material, Inauguration, <b>finalization of Time table</b> , overview of course activities.	Venue –VLSI Lab.
Day-2	Introduction to Embedded Systems, hardware/software co-design, Embedded micro controller cores (ARM, RISC, CISC, SOC), embedded memories, Examples of embedded systems.	
Day-3	Real-time concepts, Real-Time Operating Systems, required RTOS services/capabilities (in contrast with traditional OS). Architectures of Embedded systems.	
Day-4	AVRRISC controllers, parallel I/O, external interrupts.	
Day-5	Development Tools (assembler, simulator, Code vision “C” compiler, loader)	Extensively on Embedded “C” programming
Day-6	Practical on above topics	Hands on practice
Day-7	Serial communications: SCI, SPI, Timing generation and measurements. Data acquisition.	
Day-8	Practical on above topics	Hands on practice
Day-9	Interfacing with Switches, Keyboards, LED’s, LCD’s, Transistors for uc - controlled switches, uc - controlled relays, solenoids, DC, AC motors and stepper motors	
Day-10	Practical on above topics	Hands on practice
Day-11	Introduction to PCB design (EAGLE software) AVRRISC Controller minimum system design, components distribution (PCB, Atmega8535, LCD, KBD, MAX232, power supply etc.)	Free to every participant
Day-12	Practical on above topics, Mini Project allotment.	Individual
Day-13	Memory and High-speed I/O Interfacing, Analog interfacing and Data Acquisition Systems, Transducers used in embedded systems, Digital Control Systems, Fuzzy logic control systems, Digital Filters.	
Day-14	Project demonstration and certificate distribution	Softcopy not more than five pages